



#7

# SEQUENCE LISTING

<110> William, Fodor

<120> ENGINEERED RECOMBINANT MOLECULE THAT REGULATES HUMORAL AND  
CELLULAR EFFECTOR FUNCTIONS OF THE IMMUNE SYSTEM

<130> 1087-19

<140> 09/928,267

<141> 2001-10-08

<160> 27

<170> PatentIn version 3.2

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Pro Ala Val Val Leu Ala Asn Ser Arg Gly Val Ala Ser Phe Val Cys  
 35 40 45

Glu Tyr Gly Ser Ala Gly Lys Ala Ala Glu Val Arg Val Thr Val Leu  
 50 55 60

Arg Arg Ala Gly Ser Gln Met Thr Glu Val Cys Ala Ala Thr Tyr Thr  
 65 70 75 80

Val Glu Asp Glu Leu Thr Phe Leu Asp Asp Ser Thr Cys Thr Gly Thr  
 85 90 95

Ser Thr Glu Asn Lys Val Asn Leu Thr Ile Gln Gly Leu Arg Ala Val  
 100 105 110

Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu Leu Leu Tyr Pro Pro Pro  
 115 120 125

Tyr Tyr Val Gly Met Gly Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro  
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Cys Tyr Asn Cys Pro Asn Pro Thr Ala Asp Cys Lys Thr Ala Val Asn  
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Cys Ser Ser Asp Phe Asp Ala Cys Leu Ile Thr Lys Ala Gly Leu Gln  
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Val Tyr Asn Lys Cys Trp Lys Phe Glu His Cys Asn Phe Asn Asp Val  
 195 200 205

Thr Thr Arg Leu Arg Glu Asn Glu Leu Thr Tyr Tyr Cys Cys Lys Lys  
 210 215 220

Asp Leu Cys Asn Phe Asn Glu Gln Leu Glu Asn Gly Gly Thr Ser Leu  
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Trp Ser Leu His Pro  
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Pro Ala Val Val Leu Ala Asn Ser Arg Gly Val Ala Ser Phe Val Cys  
35 40 45

Glu Tyr Gly Ser Ala Gly Lys Ala Ala Glu Val Arg Val Thr Val Leu  
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Arg Arg Ala Gly Ser Gln Met Thr Glu Val Cys Ala Ala Thr Tyr Thr  
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Val Glu Asp Glu Leu Thr Phe Leu Asp Asp Ser Thr Cys Thr Gly Thr  
85 90 95

Ser Thr Glu Asn Lys Val Asn Leu Thr Ile Gln Gly Leu Arg Ala Val  
100 105 110

Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu Leu Leu Tyr Pro Pro Pro  
115 120 125

Tyr Tyr Val Gly Met Gly Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro  
130 135 140

Glu Pro Cys Pro Asp Ser Asp Phe Gly Gly Gly Gly Gly Gly Met Gln  
145 150 155 160

Cys Tyr Asn Cys Pro Asn Pro Thr Ala Asp Cys Lys Thr Ala Val Asn  
165 170 175

Cys Ser Ser Asp Phe Asp Ala Cys Leu Ile Thr Lys Ala Gly Leu Gln

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|---|-----|-----|
| 180   | 185 | 190 |
| Val Tyr Asn Lys Cys Trp Lys Phe Glu His Cys Asn Phe Asn Asp Val |     |     |
| 195   | 200 | 205 |
| Thr Thr Arg Leu Arg Glu Asn Glu Leu Thr Tyr Tyr Cys Cys Lys Lys |     |     |
| 210   | 215 | 220 |
| Asp Leu Cys Asn Phe Asn Glu Gln Leu Glu Asn Gly Gly Thr Ser Leu |     |     |
| 225   | 230 | 235 |
| Ser Glu Lys Thr Val Leu Leu Leu Val Thr Pro Phe Leu Ala Ala Ala |     |     |
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 Pro Ala Val Val Leu Ala Ser Ser Arg Gly Ile Ala Ser Phe Val Cys  
 35 40 45  
 Glu Tyr Ala Ser Pro Gly Lys Ala Thr Glu Val Arg Val Thr Val Leu  
 50 55 60

Arg Gln Ala Asp Ser Gln Val Thr Glu Val Cys Ala Ala Thr Tyr Met  
65 70 75 80

Thr Gly Asn Glu Leu Thr Phe Leu Asp Asp Ser Ile Cys Thr Gly Thr  
85 90 95

Ser Ser Gly Asn Gln Val Asn Leu Thr Ile Gln Gly Leu Arg Ala Met  
100 105 110

Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu Leu Met Tyr Pro Pro Pro  
115 120 125

Tyr Tyr Leu Gly Ile Gly Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro  
130 135 140

Glu Pro Cys Pro Asp Ser Asp Ala Ser Ala Ser Ala Ser Leu Gln Cys  
145 150 155 160

Tyr Asn Cys Pro Asn Pro Thr Ala Asp Cys Lys Thr Ala Val Asn Cys  
165 170 175

Ser Ser Asp Phe Asp Ala Cys Leu Ile Thr Lys Ala Gly Leu Gln Val  
180 185 190

Tyr Asn Lys Cys Trp Lys Phe Glu His Cys Asn Phe Asn Asp Val Thr  
195 200 205

Thr Arg Leu Arg Glu Asn Glu Leu Thr Tyr Tyr Cys Cys Lys Lys Asp  
210 215 220

Leu Cys Asn Phe Asn Glu Gln Leu Glu Asn Gly Gly Thr Ser Leu Ser  
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Ser Leu His Pro  
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Glu Tyr Ala Ser Pro Gly Lys Ala Thr Glu Val Arg Val Thr Val Leu  
50 55 60

Arg Gln Ala Asp Ser Gln Val Thr Glu Val Cys Ala Ala Thr Tyr Met  
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Thr Gly Asn Glu Leu Thr Phe Leu Asp Asp Ser Ile Cys Thr Gly Thr  
85 90 95

Ser Ser Gly Asn Gln Val Asn Leu Thr Ile Gln Gly Leu Arg Ala Met  
100 105 110

Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu Leu Met Tyr Pro Pro Pro  
115 120 125

Tyr Tyr Leu Gly Ile Gly Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro  
130 135 140

Glu Pro Cys Pro Asp Ser Asp Ala Ser Ala Ser Ala Ser Leu Gln Cys  
145 150 155 160

Tyr Asn Cys Pro Asn Pro Thr Ala Asp Cys Lys Thr Ala Val Asn Cys  
165 170 175

Ser Ser Asp Phe Asp Ala Cys Leu Ile Thr Lys Ala Gly Leu Gln Val  
180 185 190

Tyr Asn Lys Cys Trp Lys Phe Glu His Cys Asn Phe Asn Asp Val Thr  
195 200 205

Thr Arg Leu Arg Glu Asn Glu Leu Thr Tyr Tyr Cys Cys Lys Lys Asp

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| 225   | 230 | 235 240 |
| Glu Lys Thr Val Leu Leu Leu Val Thr Pro Phe Leu Ala Ala Ala Trp |     |         |
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          20          25          30

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Val Phe Ser Lys Gly Met His Val Ala Gln Pro Ala Val Val Leu Ala
          35          40          45

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Asn Ser Arg Gly Val Ala Ser Phe Val Cys Glu Tyr Gly Ser Ala Gly
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Lys Ala Ala Glu Val Arg Val Thr Val Leu Arg Arg Ala Gly Ser Gln
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Met Thr Glu Val Cys Ala Ala Thr Tyr Thr Val Glu Asp Glu Leu Thr
          85          90          95

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Phe Leu Asp Asp Ser Thr Cys Thr Gly Thr Ser Thr Glu Asn Lys Val
          100          105          110

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Asn Leu Thr Ile Gln Gly Leu Arg Ala Val Asp Thr Gly Leu Tyr Ile
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Cys Lys Val Glu Leu Leu Tyr Pro Pro Pro Tyr Tyr Val Gly Met Gly  
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Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser  
 145 150 155 160

Asp Phe Leu Leu Trp Ile Leu Ala Thr Val Ser Ser Gly Leu Phe Phe  
 165 170 175

Tyr Ser Phe Leu Ile Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys  
 180 185 190

Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Asn Ala Pro Thr Glu  
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Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn  
 210 215 220

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Val Phe Cys Lys Ala Met His Val Ala Gln Pro Ala Val Val Leu Ala  
 35 40 45

Ser Ser Arg Gly Ile Ala Ser Phe Val Cys Glu Tyr Ala Ser Pro Gly  
 50 55 60

Lys Ala Thr Glu Val Arg Val Thr Val Leu Arg Gln Ala Asp Ser Gln  
 65 70 75 80

Val Thr Glu Val Cys Ala Ala Thr Tyr Met Thr Gly Asn Glu Leu Thr  
 85 90 95

Phe Leu Asp Asp Ser Ile Cys Thr Gly Thr Ser Ser Gly Asn Gln Val  
 100 105 110

Asn Leu Thr Ile Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile  
 115 120 125

Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Tyr Leu Gly Ile Gly  
 130 135 140

Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser  
 145 150 155 160

Asp Phe Leu Leu Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe  
 165 170 175

Tyr Ser Phe Leu Leu Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys  
 180 185 190

Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu  
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Pro Glu Cys Glu Lys Gln Phe Gln Pro Tyr Phe Ile Pro Ile Asn  
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Met Ala Cys Leu Gly Phe Gln Arg His Lys Ala Gln Leu Asn Leu Ala  
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Ala Arg Thr Trp Pro Cys Thr Leu Leu Phe Phe Leu Leu Phe Ile Pro  
20 25 30

Val Phe Cys Lys Ala Met His Val Ala Gln Pro Ala Val Val Leu Ala  
35 40 45

Ser Ser Arg Gly Ile Ala Ser Phe Val Cys Glu Tyr Ala Ser Pro Gly

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| 65  | 70  | 75 80   |
| Val Thr Glu Val Cys Ala Ala Thr Tyr Met Thr Gly Asn Glu Leu Thr |     |         |
|   | 85  | 90 95   |
| Phe Leu Asp Asp Ser Ile Cys Thr Gly Thr Ser Ser Gly Asn Gln Val |     |         |
|   | 100 | 105 110 |
| Asn Leu Thr Ile Gln Gly Leu Arg Ala Met Asp Thr Gly Leu Tyr Ile |     |         |
|   | 115 | 120 125 |
| Cys Lys Val Glu Leu Met Tyr Pro Pro Pro Tyr Tyr Leu Gly Ile Gly |     |         |
|   | 130 | 135 140 |
| Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser |     |         |
| 145   | 150 | 155 160 |
| Asp Phe Leu Leu Trp Ile Leu Ala Ala Val Ser Ser Gly Leu Phe Phe |     |         |
|   | 165 | 170 175 |
| Tyr Ser Phe Leu Leu Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys |     |         |
|   | 180 | 185 190 |
| Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Met Pro Pro Thr Glu |     |         |
|   | 195 | 200 205 |
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| <212> PRT   |     |         |
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| <400> 22  |     |         |
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| 1   | 5   | 10 15   |
| Ser Arg Thr Trp Pro Cys Thr Ala Leu Phe Ser Leu Leu Phe Ile Pro |     |         |
|   | 20  | 25 30   |

Val Phe Ser Lys Gly Met His Val Ala Gln Pro Ala Val Val Leu Ala  
 35 40 45

Asn Ser Arg Gly Val Ala Ser Phe Val Cys Glu Tyr Gly Ser Ala Gly  
 50 55 60

Lys Ala Ala Glu Val Arg Val Thr Val Leu Arg Arg Ala Gly Ser Gln  
 65 70 75 80

Met Thr Glu Val Cys Ala Ala Thr Tyr Thr Val Glu Asp Glu Leu Thr  
 85 90 95

Phe Leu Asp Asp Ser Thr Cys Thr Gly Thr Ser Thr Glu Asn Lys Val  
 100 105 110

Asn Leu Thr Ile Gln Gly Leu Arg Ala Val Asp Thr Gly Leu Tyr Ile  
 115 120 125

Cys Lys Val Glu Leu Leu Tyr Pro Pro Pro Tyr Tyr Val Gly Met Gly  
 130 135 140

Asn Gly Thr Gln Ile Tyr Val Ile Asp Pro Glu Pro Cys Pro Asp Ser  
 145 150 155 160

Asp Phe Leu Leu Trp Ile Leu Ala Thr Val Ser Ser Gly Leu Phe Phe  
 165 170 175

Tyr Ser Phe Leu Ile Thr Ala Val Ser Leu Ser Lys Met Leu Lys Lys  
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Arg Ser Pro Leu Thr Thr Gly Val Tyr Val Lys Asn Ala Pro Thr Glu  
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Met Gly Ile Gln Gly Gly Ser Val Leu Phe Gly Leu Leu Leu Val Leu  
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Ala Val Phe Cys His Ser Gly His Ser Leu Gln Cys Tyr Asn Cys Pro  
 20 25 30

Asn Pro Thr Ala Asp Cys Lys Thr Ala Val Asn Cys Ser Ser Asp Phe  
 35 40 45

Asp Ala Cys Leu Ile Thr Lys Ala Gly Leu Gln Val Tyr Asn Lys Cys  
50 55 60

Trp Lys Phe Glu His Cys Asn Phe Asn Asp Val Thr Thr Arg Leu Arg  
65 70 75 80

Glu Asn Glu Leu Thr Tyr Tyr Cys Cys Lys Lys Asp Leu Cys Asn Phe  
85 90 95

Asn Glu Gln Leu Glu Asn Gly Gly Thr Ser Leu Ser Glu Lys Thr Val  
100 105 110

Leu Leu Leu Val Thr Pro Phe Leu Ala Ala Ala Trp Ser Leu His Pro  
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Ala Val Phe Cys His Ser Gly His Ser Leu Gln Cys Tyr Asn Cys Pro  
20 25 30

Asn Pro Thr Ala Asp Cys Lys Thr Ala Val Asn Cys Ser Ser Asp Phe  
35 40 45

Asp Ala Cys Leu Ile Thr Lys Ala Gly Leu Gln Val Tyr Asn Lys Cys  
50 55 60

Trp Lys Phe Glu His Cys Asn Phe Asn Asp Val Thr Thr Arg Leu Arg  
65 70 75 80

Glu Asn Glu Leu Thr Tyr Tyr Cys Cys Lys Lys Asp Leu Cys Asn Phe  
85 90 95

Asn Glu Gln Leu Glu Asn Gly Gly Thr Ser Leu Ser Glu Lys Thr Val  
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Leu Leu Leu Val Thr Pro Phe Leu Ala Ala Ala Trp Ser Leu His Pro  
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<210> 27  
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<400> 27

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Glu Leu Pro Arg Leu Leu Leu Val Leu Leu Cys Leu Pro Ala Val  
 20 25 30

Trp Gly Asp Cys Gly Leu Pro Pro Asp Val Pro Asn Ala Gln Pro Ala  
 35 40 45

Leu Glu Gly Arg Thr Ser Phe Pro Glu Asp Thr Val Ile Thr Tyr Lys  
 50 55 60

Cys Glu Glu Ser Phe Val Lys Ile Pro Gly Glu Lys Asp Ser Val Ile  
 65 70 75 80

Cys Leu Lys Gly Ser Gln Trp Ser Asp Ile Glu Glu Phe Cys Asn Arg  
 85 90 95

Ser Cys Glu Val Pro Thr Arg Leu Asn Ser Ala Ser Leu Lys Gln Pro  
 100 105 110

Tyr Ile Thr Gln Asn Tyr Phe Pro Val Gly Thr Val Val Glu Tyr Glu  
 115 120 125

Cys Arg Pro Gly Tyr Arg Arg Glu Pro Ser Leu Ser Pro Lys Leu Thr  
 130 135 140

Cys Leu Gln Asn Leu Lys Trp Ser Thr Ala Val Glu Phe Cys Lys Lys  
 145 150 155 160

Lys Ser Cys Pro Asn Pro Gly Glu Ile Arg Asn Gly Gln Ile Asp Val  
 165 170 175

Pro Gly Gly Ile Leu Phe Gly Ala Thr Ile Ser Phe Ser Cys Asn Thr  
 180 185 190

Gly Tyr Lys Leu Phe Gly Ser Thr Ser Ser Phe Cys Leu Ile Ser Gly  
 195 200 205

Ser Ser Val Gln Trp Ser Asp Pro Leu Pro Glu Cys Arg Glu Ile Tyr  
 210 215 220

Cys Pro Ala Pro Pro Gln Ile Asp Asn Gly Ile Ile Gln Gly Glu Arg  
 225 230 235 240

Asp His Tyr Gly Tyr Arg Gln Ser Val Thr Tyr Ala Cys Asn Lys Gly  
 245 250 255

Phe Thr Met Ile Gly Glu His Ser Ile Tyr Cys Thr Val Asn Asn Asp  
 260 265 270

Glu Gly Glu Trp Ser Gly Pro Pro Pro Glu Cys Arg Gly Lys Ser Leu  
 275 280 285

Thr Ser Lys Val Pro Pro Thr Val Gln Lys Pro Thr Thr Val Asn Val  
 290 295 300

Pro Thr Thr Glu Val Ser Pro Thr Ser Gln  
 305 310